

Topic 1: What is Finance?

- *Cost of capital* - how much (%) needs to be paid for debt & equity.
- *WACC* - measure of the cost of capital, using a weighted average of debt & equity costs.
- *Required Rate of Return* – minimum % needed to be earned on capital invested.
- *Expected Rate of Return* – what is forecasted to be earned (%) on assets
- *Rate of Return* - the percentage earned on the capital invested over a given period of time

$$E(R)_{Assets} > RROR_{Capital}$$

The *flow of funds* is where capital is transferred from surplus units to deficit units in an economy.

The efficient flow of funds is important for the efficient growth of the economy. It means:

- Capital is not mispriced
Mispriced: Price paid is not appropriate, being over or under fair value.
- Surplus & deficit units have sufficient liquidity
Liquidity: Deficit units are able to raise the capital they need and have surplus units have enough capital to meet deficit units need.

There are 3 ways for the flow of funds to occur in an economy:

1. Direct transfer between surplus & deficit units.
2. Indirect transfer; using an investment bank (a type of financial intermediary)
3. Indirect transfer; using a financial intermediary

Examples of financial intermediary:

1. *Financial Institutions*: businesses that facilitate the flow and transfer of funds by providing intermediation.
2. *Financial Instruments*: primarily types of debt & equity that are vehicles for the flow/transfer of funds. (e.g. bonds)
3. *Financial Markets*: where financial instruments are created and traded.

| Advantages | Disadvantages |
|--|---|
| <ul style="list-style-type: none"> ▪ Asset transformation – turning deposits into loans ▪ Credit risk transformation & diversification – low risk deposits turned into higher risk loans and different types of loans. ▪ Liquidity transformation – short-term debt (deposits) used to fund long-term assets (loans). ▪ Economies of scale – the larger banks are, the cheaper intermediation becomes. | <ul style="list-style-type: none"> ▪ They need to possess a sufficient level of financial sophistication, market reputation, credit worthiness and economic size/influence. ▪ While a company like BHP can engage in direct financing, the local Milk Bar or Fish & Chip shop would not be able to borrow money or raise finance directly from surplus units. |

Direct Finance Advantages & Disadvantages

| Advantages | Disadvantages |
|---|---|
| <ul style="list-style-type: none"> ▪ Saves on the cost of intermediation; hiring a 3rd party is not free. | <ul style="list-style-type: none"> ▪ Difficulty in matching preferences between surplus & deficit units. |

Net Present Value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time whilst **Present value (PV)** is the current value of a future sum of money or stream of cash flow given a specified rate of return.

$$NPV = NCF_0 + \frac{NCF_2}{(1+k)^2} + \dots + \frac{NCF_n}{(1+k)^n}$$

$$NPV = \sum_{i=0}^n \frac{NCF_i}{(1+k)^i}$$

Where...

NCF_i = Net cash flow in periods $i = 0, 1, 2 \dots n$

NCF_0 = Typically the price/project cost; but also including any cash flow in advance.

k = discount rate, typically a required rate of return.

n = the project's estimated life

Weighted Average Cost of Capital (WACC)

$$WACC = \frac{E}{V} \times k_e + \frac{D}{V} \times k_d$$

Where:

E = total firm's equity

D = total firm's debt

V = total firm's financing

K_e = cost of equity

K_d = cost of debt

- Another way of re-writing the above to better comprehend IRR is:

$$\text{Project Cost or Price} = \frac{NCF_1}{(1+IRR)^1} + \frac{NCF_2}{(1+IRR)^2} + \dots + \frac{NCF_n}{(1+IRR)^n}$$

Solving for IRR, given
NCFs and Price

- IRR** is the periodic yield of the project, determined as what the capital invested grows by each period, into the expected future net cash flows of the project.
- It is solved through your financial calculator, using the CF_j button.
- IRR is solving for i the per period growth of capital invested in the project:

In NPV, we are solving for PV, applying a discount rate, which is a required rate of return.

$NPV = \text{Present Value of Project} - \text{Cost}$

$$PV = \frac{NCF_1}{(1+RRoR)^1} + \frac{NCF_2}{(1+RRoR)^2} + \dots + \frac{NCF_n}{(1+RRoR)^n}$$

Solving for PV, by apply RRoR to NCF

- $IRR > RRoR$, accept project. $IRR < RRoR$, reject.

Topic 5: Applications of Finance

Interest-only loans is where the borrower only pays the interest while the principal remains untouched until it's due.

Fully amortising loans is where each loan repayment comprises of interest and principal so that by the final repayment, the entire loan principal is paid off.

Partly amortising loans is where each loan repayment comprises of interest and principal. However, by the final repayment, there is a loan principal balance remaining to be paid off.

Fixed rate loan is where the interest cost of the loan is fixed, usually over a term of 1 – 5 years.

Variable rate loan is where interest cost is subject to change depending on the how banks price credit and changes in the official cash rate.

Split rate loan is where part of the loan to be fixed, and the remaining part to be variable; e.g. ½ the loan is fixed, ½ the loan is variable.

Equity Deposit is where the property buyer will have to accumulate and contribute an equity deposit that usually is the buyer’s savings of income over time.

Loan-to-Value Ratio (LVR) is the % of the property price that a financial institution will lend to a borrower.

Managed funds are one of the most common and largest (by assets under management) investment vehicles in Australia. Investors’ money are pooled together and an investment manager then buys and sell shares or other assets on your behalf. Investors are usually paid income or 'distributions' periodically.

| Advantages | Disadvantages |
|--|---|
| <ol style="list-style-type: none"> 1. The investment decision making is handled for them by a better informed, professional investment manager; allowing access to a more diverse range of assets and investment strategies. 2. There is a low barrier to entry as the minimum capital required by many funds is easily affordable. 3. Many managed funds are listed on the stock exchange, making them highly liquid where capital can be redeemed, quickly, easily and cheaply. | <ol style="list-style-type: none"> 1. You may be charged higher fees than other investment types, though fees vary widely (for example, exchange traded funds often have lower fees than traditional managed funds) 2. You may not be able to convert your investment to cash when you want to 3. You rely on the skills of other people and do not control investment decisions |

The main categories of *managed funds* are:

- Statutory Funds of Life Insurance Offices
- Superannuation Funds
- Public Unit Trusts
- Cash Management Trusts
- Exchange Traded Funds
- Hedge Funds

The main distinctions are Open versus Closed-end-funds.

- *Open-ended funds* are where capital invested may be redeemed at any time whilst *close-ended* funds are where there are restrictions on capital redemptions.

Superannuation (Super) Funds are a specific type of Managed Fund where the objective is to save and invest over one’s working life to provide a means of income during retirement.

What the originator (creator) of the home mortgage can do with the asset?

1. Keep the mortgage till maturity; bearing the credit risk of the borrower and earning the interest return.
2. Sell the mortgage, by itself, to another investor who takes over the credit risk and return of the mortgage.
3. Securitise the mortgage; easier to sell than the mortgage than by itself as a single asset.